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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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John G. Noetzel

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04/18/2006

DELPHI TECHNOLOGIES, INC.

M/C 480-410-202

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EXAMINER

LEWIS, BEN

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 04/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

CW

Office Action Summary	Application No.		Applicant(s)	
	09/778,537		NOETZEL ET AL.	
	Examiner		Art Unit	
	Ben Lewis		1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 and 31-56 is/are pending in the application.
- 4a) Of the above claim(s) 43-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10, 11, 13-15, 17-21, 23-28 and 31-42 is/are rejected.
- 7) ☒ Claim(s) 9, 16 and 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/27/06</u> . | 6) <input type="checkbox"/> Other: ____ |

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Detailed Action

1. The Applicant's request for reconsideration filed on February 17th, 2005 was received.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (issued on November 15 2004).

Claim Rejections - 35 USC § 103

3. Claims 1-8, 10-11, 13-15, 17-21, 23-28 and 31-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okada et al (U.S. Patent No. 6,266,576) in view of Perry's Chemical Engineer's Handbook (Perry's).

Okada et al. disclose a method for controlling reformat delivered to fuel cell. The system includes an electric generating managing means (7), which is a system controller. The electric generating managing means detects the pressure in reservoir tank (12) by a pressure sensor (see column 9, line 36) and thus receives a "reformat pressure signal". The electric generating managing means controls or actuates the variable valve (10). (See column 10, lines 39-42.) As shown in Fig. 1, the variable valve is actuated in response to reformat pressure and target (desired) reformat pressure (26) (See column 9, lines 27-52). Okada et al further teach that as shown in FIG. 13, the fuel cell unit 50 comprises the fuel cell 5 for generating electric energy by way of a chemical reaction between hydrogen and oxygen in air, a first shutoff valve 62 which can be opened and closed by a control signal from the fuel cell controller 56 (See

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Fig 13) (Col 21 lines 48-67). The first shut off valve **62** is disposed in the reformat stream of Okada et al.

The disclosure of Okada does not explicitly disclose the controller receiving a "controllable valve position signal." As illustrated in Perry's, such a positioner includes a stem-position feedback network, so a valve position signal is provided to the electric generating managing means. (See Perry's, page 8-69.). Therefore it would have been obvious to one of ordinary skill in the art to incorporate the stem-position feedback network of Perry's in the system of Okada et al because Perry's teach that the valve position, when combined with an appropriate actuator, forms a complete closed-loop valve-position control system. This system makes the valve stem conform to the input signal coming from the process controller in spite of force loads the actuator may encounter while moving the control valve. (See Perry's, Page 8-69) Therefore, a conventional valve positioner would enable the variable valve disclosed by Okada to send a controllable valve position signal to, and be controlled by the electric generating managing means.

Allowable Subject Matter

4. Claims 9,12,16 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 9,12,16 and 22 are allowable because the closest prior arts of record Okada and Perry's Handbook do not

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disclose or suggest controllable valve command is reduced if said controllable valve position error signal is greater than a first position error threshold and increased if said controllable valve position error signal is less than a second position error threshold.

Response to Arguments

5. Applicant's arguments filed on September 19th, 2005 have been fully considered but they are not persuasive.

Applicant's principle arguments are

(a) Neither the primary nor the secondary reference nor secondary Perry's reference disclose control of that valve in response to desired reformat pressure and measure reformat pressure, as required by Applicants' claims.

(b) There is no disclosure or suggestion whatsoever of controlling valve 62 off a desired reformat pressure and a measured reformat pressure signal as required by Applicants' claims.

(c) There is no disclosure or teaching whatsoever of controlling valve 62 in response to reformat pressure.

(d) Neither the primary Okada et al reference nor the secondary Perry's reference discloses or suggests controlling a valve in a reformat stream being delivered to a fuel cell based on a desired reformat pressure and a reformat pressure signal (and a valve position signal, although this may be generally disclosed in Perry's).

In response to Applicant's arguments, please consider the following comments.

(a), (b), (c) and (d) Okada et al further teach that as shown in FIG. 13, the fuel cell unit **50** comprises the fuel cell **5** for generating electric energy by way of a chemical reaction between hydrogen and oxygen in air, a first shutoff valve **62** which can be opened and closed by a control signal from the fuel cell controller **56** (See Fig 13) (Col 21 lines 48-67). The first shut off valve **62** is disposed in the reformat stream of Okada et al.

Okada et al also teach that the hydrogen supply means **6** comprises a raw material tank **8** (corresponding to a raw material storage means) for storing methanol which is a material of hydrogen, a reformer **9** for decomposing methanol supplied from the raw material tank **8** into hydrogen and carbon dioxide thereby to generate hydrogen as a fuel for the fuel cell **5**, a variable valve **10** for regulating the amount of methanol supplied from the raw material tank **8** to the reformer **9**, a pressure regulator **11** for reducing the pressure of hydrogen supplied from the reformer **9** to the fuel cell **5** to a constant pressure (e.g., 0.3 atmospheric pressure), and a reservoir tank **12** for storing a sufficient amount of hydrogen to be supplied from the reformer **9** to the fuel cell **5** (Col 8 lines 35-50) (See Fig. 1).

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ben Lewis

Patent Examiner
Art Unit 1745



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER